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RADIUM AND ITS APPLICATION IN MEDICINE AND SURGERY.*

By EVERETT S. LAIN, M. D.

Associate Professor and Head of Department of Dermatology,
University of Oklahoma School of Medicine,
Oklahoma City

Most physicians of today are fairly versed upon some of the properties of radium or may have seen cases which have been treated successfully or otherwise with this agent. Therefore, they have already formed opinions as regards its present or future value in the field of medical and surgical therapeutics. It is not our desire to influence these opinions either for, or against, the therapeutic value of this agent, but only endeavor to present this subject in a briefly historical manner followed by some conclusions arrived at after a two years personal experience with this new agent. These conclusions are also based upon the many reports from various physicians who have been using radium for a much longer period. Also, I have had the pleasure of interviewing many of these physicians in their offices and in medical associations where the subject of radium and its field of usefulness was discussed.

Insofar as I am aware, this is the first attempt of any member of this society to present this subject before this, our State Association. Therefore, it shall not be out of place to refresh your memory briefly upon the history of the discovery of radium and some of its physical properties.

Several years prior to the discovery of radium, the radioactivity of several new elements in nature associated with their crude compounds had been demonstrated by a French physicist, Henri Becquerel. In the study of two of these elements, namely: Uranium and thorium, which were extracted from pitch blende and carnotite, he found that the residue remaining contained an even more radioactive and fluorescent substance than had yet been known. Soon after, extensive experiments were carried on in various French laboratories where the properties of these new and radiant metals were studied. One of the most active laboratories in which these experiments were being performed was that of the physical laboratory of the University of Paris. In this laboratory a man and wife labored side by side, known to Paris inhabitants only as Professor and Madame Curie. Possessing a well trained, scientific mind which was directed by an untiring zeal for knowing the wherefore of all things, they endeavored to make a reduction of uranium beyond that of any other laboratory, and brought forth another flourescent element which they named polonium. True to the curious nature of woman, Madame Curie was not yet satisfied with this another element derived

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from pitch blende, and carried her reductions of the residue to a still further degree, which now brought forth a more potent radio-active and luminescent metal than had yet been discovered. This she reasoned is the prime element in all similar radio-activity, therefore it must be the root or radium. It is stated, a few years later this lady again exemplified the nature of her sex when she became so prominent socially and so widely known as a scientist that she found it expedient, and did obtain a divorce from her husband.

Radium is a metal of whitish-grey color, specific gravity 226.4, melts at a temperature of 700 centigrade and will decompose water innerjetically. It is said that a piece of radium will generate enough heat to raise its equal weight in ice water to a point of boiling in one hour of time.

The life of pure radium is estimated from one million to several hundred millions of years. Its original source of supply was the pitch blende mines of Northern Bohemia, though in recent years there have been located several mountainous elevations in Colorado which have yielded considerable amounts of carnotite which under a process of reduction also gives up radium in appreciable quantities. The reduction of these compounds requires large quantities of reagents, and is no small task of labor, extending over many days of time, even in the largest laboratories. It is estimated that to produce a gram of radium it requires 350 tons of crude ore and many tons of chemical reagents, such as sodium carbonate, hydrochloric and sulphuric acids. Therefore, the labor and expense in its process of reduction justifies in a manner the seemingly unreasonable price which it commands.

It has been learned that some of its unreduced compounds, such as radium bromide, chloride and sulphate, are for all practical purposes just as effective as the pure element. Therefore, the majority of placques, tubes and other forms of applicators which are upon the market and are used by physicians of today do not contain pure radium, but only these compounds, which are valued by their contents of so many milligrams of radium element.

The radio-activity of this new element is in many respects similar to that of the X-ray. However, with this essential difference, the three principal kinds of rays of radium can be separated or eliminated by metal screens, and its dosage can be far more accurately regulated than those of the X-ray. Its radio-active rays are divided into three kinds according to their properties and degree of penetration, or effects upon cellular life, namely: the alpha, the beta, and the gamma. The alpha rays represent the least penetrating, the most rapidly acting, and are easily screened. The beta rays are more penetrating and dissoluting, slowly acting and more difficult of screening. The gamma rays are the most deeply penetrating, taking several days for cellular reaction, slowly and deeply dissoluting, and are not easily screened even by the heaviest of metals such as silver, gold or lead. The convenience for application of radium around the eye or within the natural openings of the body such as the mouth, throat, vagina, rectum, etc., makes it of especial value in the treatment of early malignancy, which so frequently develops in these parts.

Since its discovery in the year of 1902, radium has been passing through the usual number of uses and abuses in the hands of the scientific as well as the unscientific, which accounts in a large measure for the many contradictory statements in the earliest reports as regards its success or failure in the various diseases in which it has been tried.

The study of radium and its medical and surgical application has now passed its fifteenth year. During this time much has been proven and demonstrated as regards its histology and histo-pathology when applied to animal tissue. It has been learned that it influences cellular life in varying degrees according to which of the rays have been used, controlled by the different screens, the distance of the applicator from the tissue affected, and the length of time in which

it is applied. When applied to animal tissue its first effects are that of stimulation to both normal and pathological cells.

If the time of this application is extended or a more intense portion of the ray is used, its second effects are that of inflammation, followed by exudate, degeneration and absorption. In the latter or second degree of reaction, the pathological cells begin a process of degeneration while the normal yet remain intact. To this repeatedly demonstrated and histological fact we are partially indebted for the successful treatment of benign and malignant neoplasms.

The third degree is that of inflammation, exudation, degeneration, absorption, and maybe necrosis, of both normal and pathological cells, ofttimes accounting for the unhealed lesions or so-called burns.

To physicians who were previously experienced in the application and effects of X-ray, the taking up of this new therapeutic agent was but a transition from an active to a more active one, which agent is found to be far more convenient and successful in certain regions and for certain diseases in which the X-ray treatment was not all that could be desired.

In giving a few conclusions as regards the partial or specific value of this new addition to therapeutics, I do not presume you to believe that my experience during the past two years, covering a limited number of cases, should be taken as a final word upon what may or may not be done with radium.

During the past two years I have attempted no experiments upon new diseases, but have in a large measure followed the methods and suggestions of such men as Russell H. Boggs, Pittsburg; Isaac Levin of New York; Samuel E. Sweitzer of Minneapolis; Frank E. Simpson of Chicago; R. L. Sutton of Kansas City, and others who have had a wider experience and extending over a longer period of time.

Under the diseases which are favorably influenced for a short or long period of time, I shall classify: arthritis, goiter, exophthalmic, Hodgkin's disease, sarcomas, fibromas, psoriasis, leukemia, chronic eczemas, pruritis, etc. Under those which are influenced favorably in a more or less permanent manner and those in which this agent should be a first choice for certain stages, types or locations, I mention epitheliomas, carcinomas, sarcomas, lupus, leukoplakia, keloids, Naevi, keratomas, mucus cysts and various other similar neoplasms, both benign and malignant.

Its convenience of application and ofttimes most marvelous results in the treatment of malignant neoplasms which so frequently develop around or upon the eyelids or in the various cavities of the body, such as the nares, mouth, ears, urethra, vagina and rectum, makes it the agent of first choice in many cases. It is also one of our most valuable post operative treatments in all forms of sarcoma and carcinomas as well as in tuberculosis of the superficial and accessible structures.

Summary.

1. Radium has the most powerful radio-active properties of any element yet discovered.

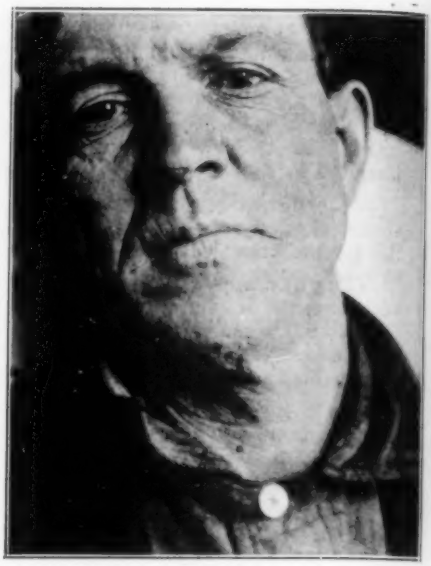
2. It has passed through the usual experience or attempts at curing the incurables or relieving the hopeless.

3. It has certain definite effects upon normal and pathological cellular life and when applied with careful observance of these laws, certain beneficial effects may be expected.

4. Radium is a most valuable addition to our therapeutics and is not excelled by any other agent, for the treatment of certain diseases, or stages of neoplasms when such are yet localized.

The following photographs with accompanying notes illustrate the ordinary and satisfactory effects in a few of the above mentioned diseases.

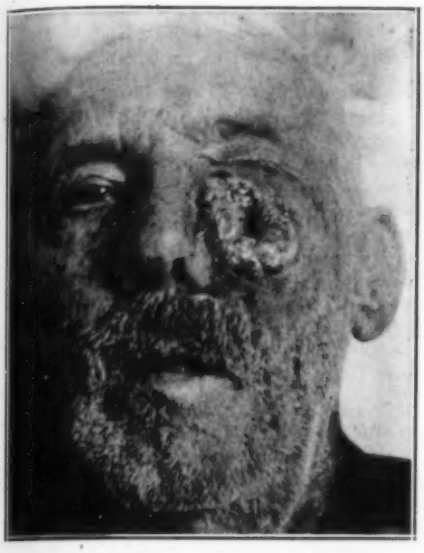
Case No. 1—Epithelioma of the lip, induration about one inch in diameter. Treated July, 1917.



Case No. 1—As patient appeared several weeks ago.

Case No. 2—Squamous celled Epithelioma on hand. Treated November, 1917.

Case No. 2—As hand appears to date.



Case No. 3—Epithelioma involving entire malar surface and portion of lower lid, alae of nose, left side. Treated November, 1917.

Case No. 3—As patient appeared recently. No remains of former lesion except small sinus which has ceased to discharge.

DRIED VEGETABLES.

The usefulness of desiccation of vegetables for food in expeditions, etc., has for its excuse the greater ease of transportation and conservation, and M. H. Givens, New Haven, Conn. (*Journal A. M. A.*, June 8, 1918), discusses the subject from the physiologic point of view. In considering the value of food today, its inorganic constituents should receive consideration as well as its protein, fat carbohydrate and vitamin content. A brief review of the literature on this special point is presented. The student of dietetics recognizes that were it not for the use of milk, eggs and a few green vegetables our food intake would be very deficient in available lime. The author's study of the subject was planned to supplement our somewhat deficient knowledge regarding the composition of desiccated vegetables. The method of drying and the analytic procedures are described. A table is given of the percentage composition of vegetables, as purchased and air-dried, arranged according to decreasing nitrogen content, which is at best, Givens says, only a rough index of the protein contained. The variation in nitrogen, according to the plant or parts of the plant, is striking. The starch plants, as potatoes and carrots, have a low protein content; while others, like spinach, lettuce and cabbage, contain a relatively high content in the dried state. There is also a noticeable difference in the amount of nitrogen in the different parts of the same plant, the tops, roots, etc. In the case of some vegetables, the nitrogen content of the dried product is in striking contrast with that of the original material, owing to the large loss of water, and the author calls attention to the possible loss of inorganic elements in cooking methods. The physiologic importance of calcium in feeding growing organisms is universally recognized. The calcium statistics, reported by Givens, are in accord with the comparable figures for such of these materials as Sherman and Forbes have analyzed. The high calcium content of the green vegetables is strikingly in contrast with that of the tubers and roots. There may be a loss of inorganic constituents, particularly calcium, in the cooking of foods and in the preparation of some of them for drying.

CARCINOMA OF THE MASTOID—CASE REPORT.*

By C. M. FULLENWIDER, M. D., Muskogee, Okla.

Fortunately, carcinoma of the middle ear or mastoid is an exceedingly rare occurrence. Newhart in a paper before the American Academy of Ophthalmology and Oto-Laryngology, last year quotes Zeroni's monograph (1899) in which he reports five cases of his own and one hundred twenty-one from the literature, of which however a considerable number were carcinoma of the external ear. Newhart was able to find thirty-four cases in the literature since Zeroni's paper and by inquiry fifty-one cases from the practice of American otologists. The growth in the majority of cases is of the squamous celled variety. A large number follow chronic suppuration. A few cures have been reported following operation. The close proximity of vital structures limits the scope of operative procedures so that an early diagnosis is essential for complete removal of the growth. The following case represents my only experience with the disease. It has been of such interest to me that I venture to report it to the society.

Mrs. J. A. E. Came to me in the fall of 1916 suffering from a chronic purulent discharge from the left ear which dated from an acute attack of otitis media seven years before. Hearing was reduced to loud voice at one foot. Granulations showed through a large perforation in the tympanic membrane and there was a mass of granulations covering a fistula on the floor of the canal and another on the posterior wall. The discharge was rather profuse and foul. I expressed the opinion that nothing short of the radical mastoid operation would cure the discharge but as the patient wished to avoid operation if possible, agreed to try conservative treatment for a time. I found extensive destruction of the bony walls of the canal and in repeated sittings was able to cut away practically all of the posterior wall of the external auditory canal and apparently nearly all of the mastoid contents. The bridge was left in place and the outer region of the mastoid near the cortex could not be reached. The exposure of the mastoid contents was so wide and the wound did so well for a time that I thought that a cure would result. The outer portion, under the cortex, continued to give trouble by the persistent recurrence of granulations and frequent slight hemorrhages. Finally the superior canal wall next to the tympanum began to sag and the patient began to complain of dizziness. On September the radical operation was performed. The mastoid was found to be extremely large and divided by a rather prominent ridge over the sinus. All of the portion anterior to the ridge, and the tympanic cavity itself, was filled with rather firm, tough granulation tissue which bled freely. The lining of the cells posterior to the sinus ridge was smooth and the cell filled only with a yellowish serous fluid. Everything was removed down to hard bone except over the inner part of the facial ridge, where the nerve was found exposed, and the inner wall of the tympanic cavity. On attempting to remove the ossicles, it was found that the slightest traction on them produced marked facial twitchings. They were removed by dissecting them out of the granulations with a small paracentesis knife. The tympanum was then cleared as thoroughly as possible. There was no facial paralysis and at no time could the fistula symptom be elicited, though the labyrinth was active.

For a time healing progressed satisfactory. About one-half of the wound had become covered with epidermis, when granulations began to trouble again. An area adjacent to the exposed facial nerve, one in the upper outer angle of the cavity and another in the tip of the mastoid, refused to become covered and granulations recurred as often as they were removed, and removal caused an increasing amount of hemorrhage. Finally an area in the roof of the antrum, which had seemed to be firmly healed, became thick and swollen and then broke down, the probe showing roughened bone.

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On October 5th, 1917, the wound was reopened. The cavity was cleaned out with the curette. The granulations cut with a feeling of resistance. The cut surface showed small yellowish spots scattered through the tissue. The posterior portion of the mastoid which had been free at the first operation was now filled with the granulations, and in clearing them away, a large defect in the bone was found and the dura uncovered. Tissue removed was submitted to Dr. F. J. Hall, who reported it to be squamous cell carcinoma. Ten days later, the patient was seen by Dr. Geo. E. Shambaugh, who advised against further operative interference. At his suggestion, a specimen of the tissue was submitted to another pathologist, who confirmed the first diagnosis. It was decided to use radium. Seventy-five milligrams were placed in the cavity and left for twelve hours. This exposure was repeated on two subsequent occassions. The improvement was marked. Apparently the growth was stopped and while the tissue never became covered with epidermis, it took on the appearance of thin scar tissur. In February of this year, a small recurrence began to show deep in the roof of the tympanum. A small capsule of radium was inserted but this time without effect. Within the last few weeks, the growth has spread to the soft tissues both above and below the ear and facial paralysis has made its appearance. Pain which had been slight in the early stages, is now so severe as to require morphia, and the patient has rapidly lost strength.

Looking back over the case I realize that my suspicions should have been aroused much sooner than they were. The tissue removed at the first operation, should have been examined microscopically, as it should be at all radical mastoid operations. I do not think such an examination would have changed the result in this case, as it was already too late, but in another case it might give warning in time.

ANTIPNEUMOCOCCIC SERUM.

N. E. Wayson and G. W. McCoy, Washington, D. C. (*Journal A. M. A.*, June 8, 1918), say that antipneumococcic serum, as developed by Neufeld, has not been accepted as an entirely satisfactory therapeutic agent. Cole and his coworkers, however, have renewed the interest in the serum by the differentiation of types of pneumococci, and the use of the specific univalant serum. Clinical evidence has accumulated tending to encourage the use of Cole's Type I serum in cases in which the corresponding infecting organism has been determined. "The official control of this product by protection tests has thus far been confined to serum produced by the immunization of horses against type I pneumococci. Polyvalent serums are required to show the same protective against Type I organisms as is the specific serum. The evidence of the manufacturers' protection tests are accepted for the potency of serums made by immunizing animals against pneumococci of Types II and III." As it seemed desirable to have all serums claimed to be effective offered for sale officially examined in the government Hygienic Laboratory, an order of such testing was given by the Secretary of the Treasury and was carried out by the authors on 104 lots of serums made by the various laboratories, representing both commercial and noncommercial manufacturers, the details of which are given. These indicate that there is little preference between serum produced by institutions for interstate sale, and that made by noncommercial manufacturers. There is no inherent difficulity in producing the serum on a commercial basis, and while the summary of results shows that the method of testing adopted by the Hygenic Laboratory resulted in a greater number of failures in serums to pass satisfactorily, the irregularities are inherent in the test, and not due to slight modifications. While the mouse test seems irregular in its results, it is believed that it affords, in its present state, a valuable measure of potency of antipneumococcic serum, when properly controlled, and that that available in the market is as potent as that from other sources.

SOME SUGGESTIONS ON THE CAUSE OF CANCER.

By ARTHUR W. WHITE, A. M., M. D., Oklahoma City

Quite recently as a result of some of the continuous studies on the cause of malignancy, some new conclusions seem to have developed. In going over the literature on cancer for the past few months this phase of the question appealed to me a little more than any other at this time except, possibly, the question of metastasis, about which seemingly nothing has been written for some considerable time.

What is contained in this paper is drawn principally from conclusions reached by Leo Loeb, Doctor Spain, Fibiger and Bulkley—from observations on tissue and tumor growth.

Tissue growth is started by external factors, which bring about similar or identical results in the tissue, even though the causes themselves differ. These are considered primary causes and are referred to by most of these men as "formative stimuli" in order to distinguish them from functional stimuli. It may be that both the formative and functional stimuli are the same, acting in a similar manner; the difference in result depending on the difference in strength and time and in the systems on which they act.

The primary causes may be either physical or chemical. The physical are either mechanical or electrical, the rays of which are held by the tissues. The chemical causes are produced somewhere in the organism itself. Even in the case of parasitic organisms the change is partly through chemical agencies which they produce; there may also be a mechanical effect.

Loeb has shown that chemical stimulus brings about changes in the affected tissue. These changes are partly chemical as is shown by increased oxidation and partly physical as shown by increased water content in the cells.

Doctor Spain demonstrated that small quantities of various rays produce stimulation on various tissues, while large quantities cause destruction.

If a strong stimulus be applied to tissues, which are under an otherwise unfavorable condition, an abnormal response takes place with the formation of giant cells, and syncytia. If the conditions of nourishment to these tissues become still more unfavorable, necrosis results.

It seems that these conditions apply both to normal tissues under abnormal conditions and to tumors, but are much more evident in malignant tumor. Further, that these same physical factors when acting over a long period, on normal tissue produce tumors or cancers. Fibiger has found it possible to produce cancer experimentally by the application of physical and physico-chemical factors, as already referred to. Apparently from his report the transformation from normal tissue to cancer was a slow one passing through several intermediate steps.

The formative stimuli act the same upon tumors and cancers as upon the normal tissues, which may it seems to me in a measure, explain why the cancer mortality under surgical management increased from 63 per 100,000 in 1900 to 81.8 in 1916, or over 28 per cent.

Loeb was able by cuts, incomplete extirpation, transplation of tumors, etc., to excite new growths in tumors both benign and malignant; which teaches us that a tumor probably should not be sectioned for examination, unless that tumor be removed quite soon thereafter, also it may explain why following the disturbance, incident in an operation, of a small cyst or other tumor we have later developing a malignancy.

Chemical formative stimuli undoubtedly play a considerable part in the natural growth and development of normal tissue.

The difference in the growth of certain organs in the young and the old, and in different races of people, and in different climates seems to suggest the

difference not only in the chemical substances circulating in the blood which affect the growth not only in normal tissues under normal conditions, but also the tissues under abnormal conditions, that is with reference to nourishment, oxidation, etc., but also that there is a varying resistance on the part of the tissues in certain systems against the effect of these chemical formative stimuli. Analagous substances seems to favor growth or delay of tumors in several types of animal life. The amphibia for example. We see from Loeb's reports some indications that during pregnancy tumors may assume large proportion in the rat, while in the mouse pregnancy seems to exert a very unfavorable influence on the growth or development of transplanted tumors so that it may be in the future that original and secondary, (or primary and metastatic tumors), will be considered as separate and distinct things.

The corpus luteum bears a specific relation to the uterine wall and the mammary gland in the normal course of metabolism, also artificially given it has a definite effect upon the ovary in its essential function, that of ovulation. So that this probably comes under the second class, that of metastatic conditions. A Japanese investigator recently in some experiments with corpus luteum on the hen demonstrated beyond question that it has a positive inhibitory action on ovulation. It has been proven experimentally in the case of cancer of the mammary gland in mice that there can be no doubt that these special substances play an important part in changing normal into cancerous tissues. By extirpation of the ovaries at maturity the spontaneous development of cancer of the breast, so common in certain strains of mice, can be almost altogether prevented.

There is another class of substances which prevent growth, as for example iodine, which according to Marine prevents compensatory hypertrophy of the thyroid, likewise according to Pearl calcium seems to counteract certain effects of the corpus luteum substances, as well as having a tendency to somewhat inhibit the growth of inoculated tumors. Again certain of these formative stimuli established in the etiology of tumor growth may bring about a converse condition, as for example assuming that heredity forms a part, along this line, the development of the stimulus may reach the point where it prevents the growth of tumor for one or two generations, when having lost its power or met new conditions in succeeding generations again acts as a productive factor.

In considering them a fully established cancer, it might be concluded that cancer is tissue growth in which a chemical stimulus probably not very diffierent from that necessary to normal development is constantly at work producing changes which accompany all growths. So that internal secretions may be responsible for the production of cancer. It has been an accepted fact for some time that long continued stimulations may produce cancer; whether the chemical stimulus must be transmitted to the cells by an outside agency or whether long continued stimulation of tissue ultimately leads to such a change in the cell that the cell itself is unable to produce continuously the substance, which propagates the growth, is probably the thing yet to be decided.

Of the attempts to unite the various facts into consistent theory of tumor and tissue immunity and growths, only two recent ones seem to have attracted any particular attention, one by E. E. Tyzzer explains the immunity as due to a local anaphylactic reaction, that is some substance is given off by the tumor cells which combines with the body fluid. The other by Loeb has to do with the mutual chemical incompatibility of the body fluids of one individual with the tissues of the other, forming abnormal products which are induced to produce dense fibrous tissue.

Williams remarks "a mass of evidence could be adduced to show that cancer is a disease of hypernutrition;" this may mean when taken with the findings of others that normal nutrition can be overdone, or that the complex of modern civilization with all its temptations and errors in regard to eating and drinking,

together with the nervous strain and the absence of physical exercise, does produce such a disturbance of the normal internal stimuli as to produce new growths.

At any rate the fact remains that while cancer is very infrequent among primitive people and among animals living in the state of nature, it is on the increase in morbidity and mortality with the increase of civilization. There can, therefore, be hardly any other conclusion than that this dire disease depends largely upon the conditions developed by or associated with our artificial existence, to which is given the name "modern civilization."

CANCER OF THE UTERUS.

By ROSS GROSSHART, M. D., Tulsa, Okla.

Cancer of female uterus and its appendages has been the destruction of women in great numbers, and it behooves the medical and surgical profession to relieve this condition by improving our methods as follows:

Until we know the true etiology of this malady we will not be able to prevent or cure all cases—but if we will use intelligently the known remedies we can prevent in a great measure the horrors and suffering of the female race.

First—let's be honest with our patients and strive to make an early diagnosis by careful history, by manual examination and observation. Don't try to prove or disprove your diagnosis by taking a microscopical specimen—safer to do complete hysterectomy as far as the patient is concerned on suspicious cases. Had better remove a few benign uteri at the age we find these disputed diagnoses than to allow one to go on and die with cancer.

These cases that are on the border line are as a rule around 40 years of age and have as a rule had their family, and you are not cheating the woman out of anything, and probably saving her a great amount of suffering, provided, the condition does not prove malignant. A uterus diseased sufficiently to simulate cancer will surely give trouble at menopause, which can be averted by removal.

Summing up what I have tried to say in short: A woman 35—irregular bleeding with leukorrhea—do not prescribe douches; make a diagnosis.

A suspicious diagnosis having been made, do not curette because a patient wants you to, and because you do not feel capable of doing major surgery. Be honest and do not jeopardize her life by allowing her to dictate to you; or your craving for money lead you astray, by doing a more simple operation (which always sounds good to a patient).

The female race would be better off if two out of three cases proved benign than to allow the third to die with cancer. An early operation is simple—mortality low. No damage to patient's future, and a happy menopause and complete relief of mind.

Operative Procedure.

Some of the readers of this article would probably like to have my idea of the operative procedure, which I will gladly give without hestitation. I would mention vaginal hysterectomy only to condemn it for cancer.

Surgery: If the malignancy is diagnosied early—sterlization of vagina—cauterize cervix, make incision through culdesac and around cervix. Push bladder away from uterus, do not cause undue manipulation of uterus. Control hemorrhage. Place iodoform gauze in vagina. Prevent contaminated air reaching peritoneal cavity. Open belly and complete hysterectomy by clamping and incising between same. Put ligature of soft catgut No. 2 on blood vessels; start at one side with continous ligature. Cover raw surfaces with peritoneum to opposite side after you have transplanted round ligaments into wall of vagina. Close belly without drain. If your cancer has been extensive, do a Wertheim after the description in text book. You will find it easier to leave the uterus intact by starting from vaginal side.

RELATIVE ETIOLOGY AND PATHOLOGY OF CANCER.

By W. FOREST DUTTON, M. D., Tulsa, Okla.

That cancer is deserving of continual study is made very clear when we understand the enormous number of lives lost anually by this cause. The special monograph, "Mortality from Cancer and other Malignant Tumors" (Bureau of the Census, 1914), shows that 52,420 deaths were assigned to these causes during the calender year 1914. This number of deaths occurred in that portion of the United States embraced in the registration area for deaths—this represents only 66.8 per cent. of the total population of continental United States. The 52,420 deaths is equivalent to a death rate of 79.4 per 100,000 people living. Assuming that this death rate is applicable to the entire country, it would mean that 78,730 deaths, if all deaths were registered, would have occurred in the United States during 1914 (F. L. Watkins).

W. Roger Williams (Natural History of Cancer, 1019) states that there has been an increase in the cancer death rate from 3 to 5 per cent. during the past thirty years.

In England the deaths, in males over 35 years of age in 1907, show that 1 man out of every 11, and 1 woman out of every 8 died of cancer.

The Aetna Insurance Company record shows that from 1870 to 1906, the death rate from cancer increased from 2.6 to 7.3 per cent. The general increase in the death rate per 100,000 population from cancer in the registration area of the United States between the years 1890 to 1900 was 12.1.

The increase of cancer in the males falls mainly on the alimentary tract, especially the stomach. The increase in the females affects the alimentary tract, breast, and uterus.

The etiological factors worthy of consideration should be considered under the following heads:

1. The occurrence of cancer in the animal and plant kingdoms.
2. Its distribution according to race and country.
3. The relation of certain localities in the same city and country.
4. Its relation to age and sex.
5. The frequency with which certain organs and tissues are affected.
6. The influence of heredity.
7. The influence of occupation and diet.

Cancer in animals bears some similarity to that found in human cancer. This has been fully demonstrated by a process of continued transplantation of its cultural cells.

Carcinoma has been frequently observed in the thyroid of trout, in the kidney of a frog, and in the glands of the skin of the *triton cristatus*.

Jensen (Second International Congress on Cancer at Paris, 1910) reports on tumors which appear to depend upon a persistent and abnormal proliferative power of certain cells on the growth of the beet. He also states that it may be transplanted. Smith has reported a like tumor growing in plants known as crown gall, which he believes to be true tumor due to the presence of bacteria.

L. Hecke (Wiener Klin Woch., 1912) discusses the relation of Smith's discovery to human cancer, and stated that it is questionable if it justifies a conclusion of an etiological factor in human cancer. Malignant tumors are frequently found in mammals. Those animals with which we are most familiar, the dog, horse, mouse, and rat, are frequently affected with cancer. The question of the identity of animal tumors with human cancer has not been successfully answered.

Van Houseman asserts that animal growths do not correspond to human cancer. Apolant (Berl. klin. Woch., 1912) maintains that the features of animal

cancer answers our standards for the disease as it occurs in the human race. He includes their histological structure, their invading characteristics, their clinical course, and their ability to form metastases.

It has been found impossible to transplant animal tumors into human beings. All attempts have failed to inoculate human cancer into mice. Metchnikoff was unable to inoculate human cancer into apes. The attempt to inoculate animal tumors into animals of different sprcies has been unsuccessful.

Cancer occurs among all races. It does not show any special predilection for any one race, or locality. Actual statistics reveal that cancer is infrequent in Africa and the South Sea Islands. Rayburn reports that cancer is unknown in Buenos Ayers. A great many authorities believe that cancer occurs more frequently in the higher classes of society. According to statistics from civilized countries the upper strata of social endeavor suffers more than the lower.

Cancer is a disease of decadence. It belongs peculiarly to the later years of life, yet those prematurely aged, by disease, or heredity, are equally prone to to the disease.

The consideration of the distribution of cancer in the human body is of significant importance from an etiological standpoint. This phase of the subject is intimately connected with the relative frequency of cancer in the male and the female.

Cancer without doubt is far more frequent in the female. This fact is accounted for in the large number of cancers found among women in the uterus and breast. The stomach in the male appears to be the most frequently affected organ. Statistics show the stomach, uterus, breast, and abdomen, in order, in both sexes to be most often attacked.

The influence of age upon cancerous conditions is of much importance. The majority of cases of cancer occur in persons from 50 to 60 years of age. Cancer is rare among children. Cases have been reported in children of 5 years.

Hereditary influences in the development of cancer play an important part in the etiology. Paget maintains that heredity is a well known factor in the causation of cancer while Pierson of Middlesex Hospital in London asserts that heredity is a negligible factor. Le Doux Lebarde reported, in the famous case of Madam Z., 15 cases out of 26 offspring of this woman who had cancer, 1 of 7 males, and 14 out of 19 females. According to the "Fourth Scientific Report of the Imperial Cancer Research Fund," "Precise evidence is advanced of the existence of a hereditry predisposition to the development of spontaneous cancer." "It can be inferred with some probability that it is a local or circumscribed tissue predisposition, in virtue of which the mammary tissue is prone to pass from mere proliferative reaction to continuous or cancer proliferation." There is abundant evidence to show that predisposition is transmitted to one organ. This has been proven by observation of certain groups of animals. It is now generally accepted by many authorities (Leven, Bashford, Tyzzier, and others) that hereditary influence has an important bearing on the causation of cancer.

The question of the existence of an exciting cause as a factor in cancer has long engaged the minds of investigators. The relation of trauma to cancer has been recognized by many. Phelps (Annals of Surg,. 1910,) maintains that there is no connection between trauma and cancer. Coley (Annals of Surg., 1911) believes that there is an etiological connection between trauma and cancer. He has observed 970 cases in which a definite history of trauma existed 225 times, or 23 per cent. In 117 cases of the 225, or 52 per cent, the tumor developed within one month after the injury. There is without question the closest relation existing between injury and the development of certain melanotic sarcomas from pigmented moles. Coley personally observed 250 cases of carcinoma in which there was a history of antecedent trauma in 82, or 32.8 per cent; 120 of these were carcinoma of the breast.

The conclusions of Coley and others (McWilliams, Segoud, Ziegler, and Liebes) are that a local trauma of any kind, from chronic irritation to a single contusion, is very often the exciting cause of malignant tumors.

Haberfield (Zeitsch. f. Krebsforshung, 1908) discusses the question of the relation between chronic inflammation of the stomach, gall-bladder, and lungs to cancer. He bases his statements upon the microscopic findings in stomachs in autopsies of 662 cases of gastric cancer. In 106, or 16 per cent., of the cases were found conditions showing that the disease originated from ulcer. MacCarty of the Mayo Clinic (Surg., Gynecol. and Obstet., May, 1910) maintains there is evidence in the microscopic sections of 70 per cent. of gastric cancers, that the latter have originated in ulcer.

In reference to cancer of the biliary passages, Haberfield says that he found stones 119 times in 164 primary cancers. Seiger (Virchow's Archiv., 1893) found gall-stones in 94 out of 99 cases of primary cancer of the common duct. A study of statistics on the subject of cancer demonstrates a close connection between the development of cancer and the various forms of chronic inflammation. Cancer of the stomach is preceded by ulcer; cancer of the biliary passages by the history of chronic cholelithiasis; cancer of the breast by mastitis; and cancer of the cervix uteri by the history of cervical laceration, erosions, or irritative discharges.

The data given does not prove that any one definite etiological factor is the cause of cancer, yet, the one factor is constantly associated with the disease. The great variety of conditions that precede cancer would lead to the conclusion that it is a pathological disturbance associated with normal cell life. The statistics on the influence of occupation on carcinoma are few and unreliable. It appears from the statistics, that are available, that laborers, clergymen, smiths, nurses, and midwives, are the most frequently affected.

Diet has apparently no relationship to the cause of cancer. No diet has been found that appears to affect the progress of this disease. It is, therefore, unwise with our present knowledge to make deductions upon cancer metabolism.

A great many theories have been advanced concerning the *essential nature of cancer*. The *parasitic theoru*, after years of painstaking labor and observation by the most competent investigators, has been practically abandoned. No single parasite has been found that will measure up to the standard necessary for the assumption of definite parasitic demonstration.

The clinical course of cancer is diametrical against the parasitic hypothesis. The multiplicity of the forms of chronic inflammatory processes which bear on etiological relation to cancer; its spontaneous development from normal tissue; the formation and growth of metastases, and the immunity of different characters existing among the lower animals indicate the nonspecifity of the cancer organism.

The *autogenic theoru* is one based upon a conception which is far more complete. It presents a reasonable explanation of facts surrounding the development of malignant disease. This theory has been divided into two different forms, or phases of two conceptions.

Thiersch, 1865, evolved the idea of the difference in the longevity of the various tissues, and the effect upon one tissue of a disturbance in connection with another. He asserted that the "rarefaction" of the connective tissue stroma is accountable for the growth of cancer.

In 1877, Cohnheim described the existence within the tissues of isolated groups of embryonic cells, and it may be called the embryonic hypothesis. He believed that tumors and cancers arose from unused fragments of tissue, or residues, some of which may be due to faults or embryonic irregularities. Although this theory offers the solution of many difficult problems it does not present the least evidence of a concrete character on the etiology of cancer.

Ribbert combines in a finished theory the essential ideas of Cohnheim and Thiersch and is deserving of special attention. His hypothesis presents as the essential cause leading to the development of cancers an inflammatory process surrounding the proliferating areas. The epithelial cells are separated from each other by the products of such process, and from the single tissue of which they are a part. Then they begin their unlimited proliferation. In many cases it is an isolated complex of embryonal cells which is so acted upon by the chronic inflammatory process.

Janeway, after much detailed study, does not believe that the idea of either Ribbert or that of Bassman include all the factors demanded in the origin of cancer. He maintains that the laws controlling the life, growth, and metaplasia of the normal epithelial cells themselves include in the many cases all that may be needed for the transition into cancer. He concludes that the transition into cancer must be regarded in the nature of a degeneration. The excessive proliferative powers replace normal physiological functions and the degeneration is dependent at times upon the existence of previously isolated cell-complexes. At times it depends upon inflammatory processes of the surrounding connective tissue stroma, and, of more importance, upon no discoverable lesion external to the epithelial cells undergoing change into cancer. He concludes that the individuality of the cells of the organism is a determining factor.

The pathogensis of cancer has always been a fascinating subject of inquiry. Although the subject becomes chimerical when the investigator is imbued with the mirage of theory, yet, this speculation has led to much work of tangible value in special lines. Cancer may occur wherever epithelial tissue is present. The essential part is the invasion of neighboring tissues by groups of cells which present a greater or less deviation in their appearance from the normal cells. The various forms of these growths depend upon the different relation of these cells to each other and to the connective tissue stroma, and to the amount and character of the stroma. The cells of carcinoma generally simulate the epithelium of the tissue in which they arise. Thus it may be acinous, or adenomatous, or alveolar, and at times the epithelial elements may be so excessively developed that the tumor appears to be practically solid with cells. Growths such as these may occur in any glandular organ, but more particularly in the breast, intestines, gall-bladder, and lungs.

It is not the purpose of the author at this time to discuss the different forms of cancer, but briefly to give his views upon carcinoma in a general way.

The study of cancer proper is the study of the cell itself. Primarily cancer is a functional disturbance, and secondarily pathological.

Briefly a reiteration of the predisposing causes will be made. Heredity (according to Mendel's Law) plays an important role insofar as the parents transmit the features, physique, low vitality, and poor construction of any organ or tissue. The caucasians, as a race, are more prone to carcinoma because of the fact that they are more subject to trauma, and to the abuses of civilization. Carcinoma is more frequent in women on account of the frequent injuries to the breast and uterus, and in addition continuous evilation of these organs. As to the affection of other organs with cancer, they are attacked in about the same proportion as men.

Geographical distribution has little if any influence upon the occurrence of cancer, all things being equal.

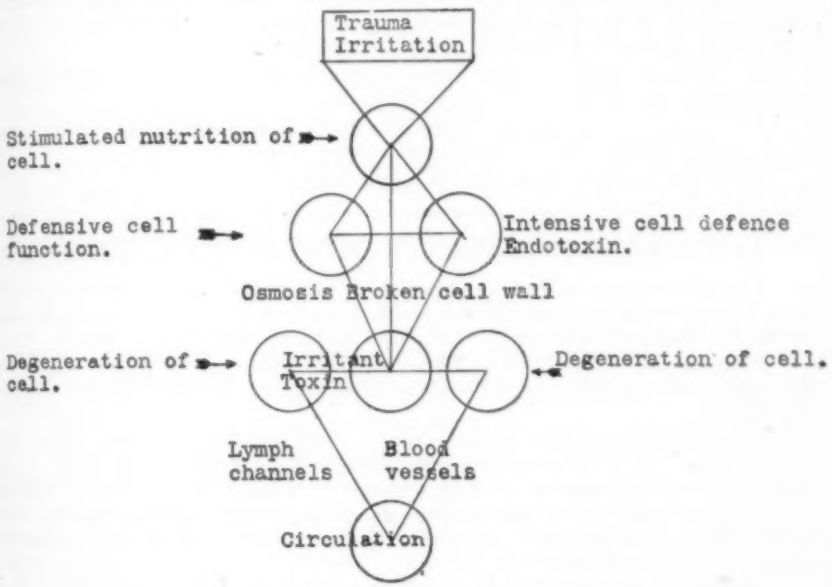
Any occupation, in which individuals are constantly in contact with irritating substances, predisposes to cancer. Among those may be mentioned soot, tar, paraffin, arsenic, lead, and vanadium.

The exciting causes are, irritation; altered resistence of connective tissue due to trauma and affecting the epithelial cells; infections producing altered resisting function; and chronic irritation.

Irritation of the cell first stimulates its nutritive function affecting every part of the cytoplasm by its inherent conductive powers. As this condition progresses a defensive action of the cell takes place. This intensive defense produces, as it were, an endotoxin due to the hyperactivity of the nuclear dominance over the cytoplasm. The barrier between the cell and the irritating agent is broken. Then there is liberated, either by osmosis or the broken cell wall, the endotoxin which in turn becomes the irritant and the toxin. By this process the cells are stimulated to unusual proliferative activity. This progressive growth is manifest by the metastases in the lymph channels and glands in the part affected and the neighboring tissues.

Many forms of carcinoma occur and various subdivisions have been suggested, but, in general, notwithstanding the arrangement of cells, they all present the same essential charcteristics.

After the cell wall is broken, degeneration begins, hence the destruction of tissue. There is the possibility of cancer "plants" existing as the result of rapid degeneration. The affecting agent is the cancer serum or "juice," and its main objective is like tissue devitalized by low resistence. The affinity of the cancer toxin for devitalized epithelial cells of the same individual and not for those of another is convincing evidence that cancer is not inoculable or communicable.



Graphic summary of the phenomena of the pathology of cancer.

Conclusions.

1. Heredity influences the development of cancer because of the predisposition of certain local or circumscribed tissue.

2. Cancer is a disease of decadence. It belongs peculiarly to the later years of life, yet those whose tissues are prematurely aged by disease or heredity are equally prone to the disease.

3. All races are susceptible to cancer.

4. Cancer occurs in organs most frequently subject to continuous irritation, or to trauma.

5. Diet has no relationship to cancer other than the ingestion of irritating substances.

6. Parasites have no etiological relation to cancer except that they may be the source of chronic irritation or inflammation.

7. Cancer is primarily a local disease.

8. The toxin of the cancer cell, or cells, may primarily affect the neighboring cells through cellular osmosis.

9. Cancer cell degeneration is often identical with its antecedent.

10. It has been proven practically impossible to transplant human cancer into animals or to other individuals.

11. Cancer tissue cannot be transplanted from one part of the body to another. Cancer tissue *per se* is not capable of transplantation unless it contain cancer toxin, hence the fallacy of transplantation of cancer from one individual to another.

12. A carcinomatous toxin may be disseminated by the natural metastatic channels.

13. The lymp-channels and glands act as a barrier to the rapid spread of cancer as they do in various other diseases; and when these are destroyed by disease, rapid dissemination takes place through the blood current.

14. Cancer serum or "juice" from one part of the body will, when injected into another part of the body, produce cancer.

15. Cancer in one part of the body renders all epithelial cells in other parts of the body inactive and susceptible to cancer toxin.

16. Cancer is non-inoculable and non-communicable.

AN ENGLISH APPRECIATION OF AMERICAN M. R. C. OFFICERS.

Colonel Furbush, of the Surgeon-General's Office, sends the following excerpts from a letter which he received from Lieut.-Gen. T. H. Goodwin, Director-General of the British Medical Service. The letter is dated May 8:

"This is only a short line as I am extremely busy. I would like to give you an extract from a letter which I have just had from G. H. Q. in France. It runs as follows:

'*The casualties amongst Medical Officers during the week have been 23, of whom 3 were killed. 5 of the casualties were amongst Mediacl Officers of the U. S. A. attached to British battalions or field ambulances, 4 being "gas" casualties and one "missing" casualty. The work of these U. S. A. Medical Officers deserves special recognition. They have been invaluable and have worked under the most trying conditions and with great gallantry.*'

"I thought you would like to know this, and I should be much obliged if you would show it to the Director-General. You are, of course, entirely at liberty to make it known in whatever way you wish, in fact, I should be glad if you would do so for I feel strongly how much we owe to your country, and I should like your people to know how well your Medical Officers are doing. . . . ."

General—then Colonel—Goodwin, it will be remembered, was in this country for over a year, and a large number of our readers will have personal remembrance of him.

It is gratifying to read the message General Goodwin sends. It must be borne in mind that the letter from which General Goodwin sends the quotation was not written with the idea that it would be presented to American readers, but for "home consumption."—*Journal A. M. A.*, June 8, 1918.

THE EARLY DIAGNOSIS OF CANCER OF THE STOMACH.

By C. J. FISHMAN, B. S., M. D.

Assistant Professor Internal Medicine, Medical Department, University of Oklahoma, Oklahoma City.

The early diagnosis of cancer of the stomach based only upon older clinical text-book symptoms may now be considered as an early autopsy diagnosis rather than clinical evidence of the disease.

The newer laboratory and X-ray methods have largely come to the front so that with a carefully obtained history, a thorough physical and laboratory examination, together with accurate X-ray technique, we may find early cancers of the stomach that are amenable to treatment and change materially the prognosis in a diagnosis of this disease. We must, however, never wait for the development of marked symptoms of cancer *per se*. The coffee-ground vomit with obstruction, absence of free hydrochloric acid and emaciation with a palpable tumor spells an absolutely hopeless case. I believe that the development in the diagnosis of cancer of the stomach will reach the point of perfection that the development in the diagnosis of acute appendicitis has reached in offering to the patient a decidedly favorable prognosis in early cases. Many cases will not be typical cancer cases but may be considered precancerous conditions of the stomach which are surgical in nature and operable from a prophylactic point of view. I look forward to the time when the finding of an inoperable carcinoma will reflect upon the diagnostic ability of the examining physician to some degree, as it reflects upon the diagnostic ability of a physician who has watched a case of acute appendicitis from the very beginning and ultimately brings the patient to the surgeon with a large abscess, insisting that such a case is still an acute appendicitis.

The diagnosis depends upon the most thorough painstaking investigation of each individual case. Nothing should be neglected in patients at or past middle life who have irregular and indefinite gastric symptoms which have not been precisely diagnosed. The investigation of these cases should be taken up under the following groups:

I. History Taking.

According to Smithies, this part of the investigation is considered most important as leading to a probable diagnosis, for he says, "There is no proved clinical procedure other than history taking which enables one to make an early diagnosis of gastric cancer." There should be one exception to this statement and that is the careful X-ray investigation of the upper gastro-intestinal canal.

There are in general, two clinical types of symptoms that are obtained in the history of most cancer cases.

Type I, in which there is a fairly definite and regularly accepted history of chronic recurrent gastric ulcer which has undergone degenerative malignant changes. This group is said to comprise two-thirds of the stomach cancer cases. The symptoms are present for a period varying from a few to many years (average about twelve) with periods of remissions and comparative good health.

There is usually pain or discomfort which is definitely related to the time, quality and quantity of food-taking. Large, heavy, coarse meals induce severe discomfort after a long period of freedom, while light, non-irritating foods induce severe discomfort after a long period of freedom, while light, non-irritating foods induce less pain and distress after a shorter period of freedom. The pain is often relieved by further food-taking, vomiting or the use of alkalies. The patients will usually have the "soda habit". Vomiting may occur at the height of the discomfort and hematemesis is also sometimes seen. The history of the beginning of the malignant degeneration often charges the above story decidedly. During the course of an attack the pain may become less severe but more continuous.

Epigastric distress may be more constantly noticed but the symptoms are all aggravated by food taking. There is a less tendency to an interval of complete freedom, as in uncomplicated ulcer. The symptoms are progressive. Blood is found in the stools in 93 per cent. of the cases if examined with sufficient frequency.

Type II, may be considered as "primary gastric carcinoma" cases in which a previous ulcer history is practically, if not entirely, absent. This group comprises approximately one-third of the cases studied. Nasuea, eructations, loss of appetite with occasional mucous vomiting, which is the text-book of chronic gastritis, should always be considered suspicious in patients over forty years of age who have previously never had stomach trouble. These patients usually say that they "never knew they had a stomach" and when complaint is made by such individuals the onset of a gastric cancer of primary type should be considered.

The absence of either of these symptom groups does not completely rule out cancer of the stomach. Cases are occasionally seen which have been diagnosed as primary pernicious anemia without stomach symptoms in which extensive cancer has been found either by operation or autopsy.

II. Physical Examination.

The local findings in early cases are frequently absent, but each patient should be thoroughly examined.

1. **Physical methods.** Palpation will rarely present any signs except a local point of tenderness with slight rigidity which are the principal signs in ulcers and may also be detected in most cases of early carcinoma and can therefore not be considered a differential point. The presence of a tumor, of course, rules out an early diagnosis, although some of these may be amenable to surgical treatment

2. **Stomach tube findings** are of value only when positive, particularly in the presence of a pyloric carcinoma, in which case obstruction symptoms in the form of retention are early present. In tumors of the lesser curvature or towards the fundus, there may frequently be no pathological signs until late in the disease. The presence, however, of microscopic food rests after an eight or ten hour fast is of aid in diagnosing a mild degree of retention, which together with other pathological findings will lead to valuable conclusions.

The stomach tube offers the only means of testing gastric secretion. Properly carried out methods with the Rehfuss tube gives evidence of the emptying power as well as of the latent bleeding.

At this point it may be well to mention a pharmacological-clinical method for the study of gastric function that should be used more extensively, both in connection with the chemical as well as the X-ray study of stomach conditions. I refer to the use of atropine in full doses to decide whether gastric retention is due to spasm associated with chemical changes or to actual tissue narrowing. In the latter case, gastric retention usually signifies a surgical condition, whether due to hyperplastic ulcer or to carcinoma.

III. Laboratory Examinations.

Laboratory tests should be carried out in all cases. There is not at this time any single method which has been proved to be reliable, but when used in connection with other methods of diagnosis often prove a valuable aid in drawing conclusions.

The tests for hydrochloric acid show no important changes in early cancer. The method of Gluzinski may be of service. According to him, ulcer is always accompanied by an active catarrh while cancer never develops without an associated mucous gastritis. He has found that the practical utilization of this fact has enabled him to develop a test which is of definite value. After an Ewald test breakfast there may be a normal amount af HCl. However, after giving a meal

of two grated, hard-boiled eggs with a glass of water, the aspiration after one hour shows a reduced amount of free HCl. After a meal consisting of soup, a portion of steak, some potato and bread, the gastric examination after three hours shows a still further reduction in free HCl. Normally, there should be a progressively increased production after each test meal of this type.

The demonstration of the so-called cancer ferments and of protein content in test meals has not proved sufficiently reliable to depend much upon the use of these reactions. However, the Neubauer-Fischer Reaction and the Wolff-Junghans Test have been used sufficiently so that they are to be recommended in a complete examination.

In the serum reaction lies the best hope of a positive specific diagnosis of gastric cancer. However, as in all serological methods dependent upon the production of specific antibodies or ferments, it is doubtful whether a sufficiently early diagnosis will be available to offer a favorable prognosis intervention. These methods up to the present time have not been sufficiently perfected to be considered reliable.

Occult blood in the stool is present in 93 per cent of gastric cancers and is a valuable aid in diagnosis together with other signs. The patient should be kept upon a meat-free diet and the stools frequently examined.

Ultimately, the diagnosis of a malignant process depends upon the **microscopic examination of the tissue** and this should be carried out in all excisions of stomach ulcers in order to verify or exclude the presence of cancer. Ulcers yield promptly to skillful medical treatment and if no improvement is noted in three to four weeks, operative interference is indicated and the lesion under the microsope will frequently show early cancerous change.

IV. X-Ray Examination.

Roentgenologists as well as clinicians are of the opinion at the present time that X-ray examinations in the detection of cancer of the stomach take precedence over all other methods of diagnosis. In the Mayo Clinic, 95 per cent of gastric cancers have been given distinct roentgenologic signs of their presence. In view of these figures every patient of cancer age with indefinite stomach symptoms should be submitted to a thorough X-ray examination. The signs of the presence of a cancer depends upon the type which is developing as well as upon the basis upon which the tumor grows. The location of the cancer as well as the skill of the examiner will determine the percentage of early diagnoses that can be made.

A constantly found filling-defect with clinical signs is sufficient to make a positive diagnosis. Cancers developing upon an ulcer basis will show in many cases evidence differing very little from that of a chronic ulcer. In tumors of the pyloric region, there will be signs of obstruction and retention with irregularity of the pyloric ring.

Ideal results in diagnosing early cancer of the stomach will correlate X-ray and clinical evidence to perfect an early opinion of a suspicious case.

THE UREA INDEX.

Reginald Fitz (New York), France (*Journal A. M. A.*, June 8, 1918), reports the urea index as a test for kidney function in the war hospital. McLean's directions were followed exactly and Marshall's urease method was found most satisfactory, using the permanent preparation of urease described by Van Slyke and Cullen. Cases showing the prognostic value of the test are reported, and also the possibility of its application in a tent hospital with few laboratory facilities. It has the advantage over the phenolsulphonephthalein test in not requiring injections, which may possibly be a source of sepsis, and in being more agreeable to the average patient. As McLean claims, it gives results of practical value in the recognition, prognosis and treatment in certain conditions of impairment of renal function.

PROCEEDINGS OF CLINICAL SOCIETY—ST. ANTHONY'S HOSPITAL, OKLAHOMA CITY.

January 21, 1918

DR. A. A. WILL, President **DR. LEILA E. ANDREWS, Secretary**

The Society elected the following officers for the ensuing year: President—Dr. Lea A. Riley; Vice-President—Dr. O. J. Walker; Secretary—Dr. Leila E. Andrews.

Dr. Leila Andrews presented a case of Hodgkin's disease that had been under observation for several months. The patient, Mrs. M., age 29, married 8 1-2 years; father living and well; mother died few months ago, result of cardio-renal-vascular disease; four sisters living—one had an arrested pulmonary tuberculosis; others well; one sister died of puerperal asepsis.

Patient always well as child, except had colds. She was a mouth breather and had adenoids removed when 21. Never had tonsilitis or diphtheria. Had mild typhoid at 16, and arthritis of shoulder at 17. Her first menstrual period was at 11. She has always been regular. Had dysmenorrhea until after her first child. She was married at 20, became pregnant one year afterward. Her pregnancy was quite stormy—nausea, vomiting and stomatitis during the whole period. She had a normal delivery with laceration of her perineum. About one week after her confinement she developed a high temperature which lasted a few days, and then disappeared. After she was able to be up her mouth and gums gave her so much trouble that she was under the dentist's care for several weeks. She had during this time conjunctivitis and later was fitted with glasses. Her menstrual periods began when the baby was 1 1-2 months old and continued regularly. After the baby was 1 1-2 years old she began to gain weight and at the end of six months was in quite her usual health. I saw her first, three years ago, when she had a beginning cystocele and rectocele and was quite nervous. She had a repair of cervix and perineum, and the removal of some hemorrhoids. She recovered promptly, and again seemed in normal health. A year afterward she became pregnant and was delivered 2 1-2 years ago of twin boys, one weighing 7 1-2 and the other 5 1-2 pounds. This pregnancy was most miserable. She was toxic—nausea, vomiting and exaggerated stomatitis marked the whole period. Her gums were so swollen that they required attention during the whole time. The stools were lighter in color than normal and occasionally there was bile in the urine. The conjunctivae were slightly tinged with yellow and the skin itched. Blood pressure was never above 140-80. Her confinement was short, altho both babies were breech presentations. A few days after the delivery an anterior cervical gland appeared in the rt. supra clavicular space. This was very tender and painful. When the babies were a week old she began having afternoon temperature and at ten days it was present all day, rising to 103-4 in afternoons. One day she had a hard chill, temperature rising to 10o, followed by profuse sweat, and a fall below normal, at which it stayed for two weeks. She had no abnormal discharge, but smears from discharge from cervix showed the Neisser diplococcus. The gland in her neck remained the size of a hazelnut, and was very tender and painful. Her convalesence was rapid. Menstruation began when babies were seven weeks old. At six months she began to feel tired and easily exhausted. This isolated gland had persisted and under it there seemed to be another. In three months these had grown in size, and a cervical gland appeared in the left side. An X-ray was made of her chest and the mediastinum showed a marked enlargement of glands. The one cervical gland was removed under local anesthesia by Dr. Reed, and a culture was made from the inside of it. The gland was then sectioned and stained and showed the typical picture of Hodgkin's disease.

The patient had many blood examinations made during the three months

she was under observation. She had a very moderate leukocytosis—usually ranging from 9000 to 13000. Her Wassermann was negative. She had her tonsils removed, some infected teeth extracted, and a most thorough treatment given the gums. She was placed upon X-ray therapy at a laboratory accustomed to treating this class of cases. She was given a vaccine made from the culture from the diphtheroid bacilli found in the tissue of the gland that was removed. She has been on active treatment for 1 1-2 years, and by the X-ray pictures presented at this meeting the mediastinum shows a marked decrease in glandular enlargement. There are only one or two palpable glands of the neck. None of the axilla. The blood count shows in fact, a leukopenia. She has greatly improved clinically, although the prognosis should be guarded.

WAR FRACTURES.

According to W. S. Baer (Baltimore), France (*Journal A. M. A.*, May 25, 1918), the treatment of fractures from battle causalties is for the most part the treatment of wounds of the soft parts, plus the added difficulities of injuries to bony tissue. Hence the importance of understanding the changes made in the treatment of the soft parts. The essential principles of war surgery are stated by him as follows: "1. All battle wounds are to be considered as infected. 2. It is necessary to remove all projectiles, clothing and devitalized tissue as early as possible, at least before the twelfth hour after injury. 3. These wounds can then be considered as aseptic in character and a primary suture made, thus converting compound fractures into simple fractures, and appropriate treatment for these simple fractures thereupon instituted." The advance in surgery which these imply and which he considers marvelous, is due to the combination and harmonious working together of the surgeon, the roentgenologist and the bacteriologist. The primary suture is the method of selection, when possible, for the beginning of the operation. And it is possible, he says, in 80 to 95 per cent. of the cases, this excluding such minor infections as stitch abscesses. The time in which sutures may be considered primary is the first twelve hours after the reception of the wound; slightly less in cases of face wounds. Its advantages are: lessened mortality from absence of infection; less suffering to the patient; absence or diminution of scar tissue; decreased period of hospitalization; saving of dressings, and often change of compound infected fractures into simple aseptic fractures that may be treated as such. The great enemy to success that is responsible for failure in 5 to 10 per cent. of the primary sutures is the streptococcus. The bacteriologic and roentgen reports are most useful in preventing this complication, and certain virulent streptococci, by themselves or associated with other organisms, may demand the immediate reopening of the primary suture. The delayed primary suture is the method adopted where primary closing of the wound is impossible, as when the patients must be removed at once from the hospital at the front. The tenchic is the same excepting that the skin is not closed and a dry sterile dressing is placed over the wound, and the skin edges brought together in three to ten days afterward. Baer's principal object in his article is to emphasize the necessity of early treatment of bone injuries by primary or delayed primary suture, for this is, he says, the keynote to the successful handling of war fractures. Bone infection is generally secondary to that of the soft parts, and it is in the handling of such cases that the combination of surgeon, bacteriologist and roentgenologist comes into play. The problem of the compound fracture is that of the simple one, and it should be operated on with the same principles, within eight or ten hours of the casualty. Hospitals of sufficient size must be located near enough the zone of advance, to enable the transportation of such cases early enough and should have a sufficient staff of specialists, constantly cooperating.

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EDITORIAL

CANCER INCREASE.

From statistics alone there would appear to be a marked increase of cancer in the civilized world, and while it is a generally accepted fact that figures do not lie, it is an open question as to whether the increase is real or apparent. There can be no doubt that improvements in diagnosis must account for at least a portion of the reported increase.

Many deaths now recognized to be from certain forms of cancer were earlier not diagnosed as such, but were reported as death from senility or some unknown cause.

When the statistician attempts to determine the relative value of this factor, difficulties are met that cause a divergence of opinion. One holds that cancer is increasing more or less rapidly, another will hold that the increase is only apparent, not real.

Cancer mortality is reported lower but appears to be increasing more rapidly in men than women. This may be apparent also and may be explained by the better methods of diagnosis and that the organs most commonly affected by cancer in men are less accessible than in women.

A parallel to the above is that the reported cancer mortality is lower in the negro than in the white, but is increasing more rapidly; here again this may be explained by the relative correctness of diagnosis.

The increase in reported appendicitis in the United States is parallel with the increase in the reported cancer mortality, which would seem to back up the presumption that the increase is due in large part, if not entirely, to improvements in diagnosis.

PERSONAL AND GENERAL NEWS

Dr. L. B. Sutherland, Ringling, is attending clinics in Chicago.

Alfalfa County General Hospital, Cherokee, was opened June 4th.

Dr. A. W. Harris, Muskogee, has been commissioned Lieutenant M. R. C.

Dr. Phil. F. Herod, Lieutenant M. R. C., ElReno, has arrived safely in France.

Dr. T. A. Hartgraves, Lieutetnant M. R. C., Soper, is stationed at Camp Travis.

Dr. A. B. Montgomery, Lieutenant M. R. C., Checotah, has arrived safely in France.

Dr. H. B. Spaulding, Ralston, has been appointed Assistant Surgeon in the U. S. Navy.

Dr. J. M. Byrum, Shawnee, attended clinics in Chicago and Rochester, Minn., during June.

Dr. G. A. Wall, Captain M. R. C., Tulsa, has reported for active service at Camp McArthur.

Dr. W. G. Lemon, Lieutenant M. R. C., Tulsa, has been ordered to Fort Bliss for active service.

Dr. E. C. Wilson, Alva, and Miss Marie McManus of Knoxville, Tenn., were married May 11th.

Dr. R. L. Mitchell, Lieutenant M. R. C., Vinita, has been ordered to Camp Sheridan for duty.

Dr. J. H. White, Captain M. R. C., Muskogee, is at Rockefeller Institute for special instruction.

Dr. R. E. Thacker, Lieutenant M. R. C., Lexington, has been ordered to report to Washington, D. C.

Dr. Horace Reed, Captain M. R. C., Oklahoma City, was ordered to report June 22nd for active service.

Dr. W. Forest Dutton, Captain M. R. C., Tulsa, has received orders to report at Camp McArthur.

Dr. C. A. Thompson, Muskogee, Secretary of the State Association, is ill at Michael Reese Hospital, Chicago.

Dr. E. N. McKee, Lieutenant M. R. C., Enid, has received orders to report for active service at Columbia, S. C.

Dr. Wallace Aitken, Lieutenant M. R. C., Enid, has been ordered to report to Rochester, Minn., for intensive training.

Dr. W. P. Fite, Captain M. C. N. G., Muskogee, stationed at Camp Bowie, and Miss Maurine Mitchell of Fort Worth were married at Fort Worth June 1st.

The Haskell County Medical Society met June 6th and elected the following officers: President, A. B. Callaway, Stigler; Vice-President, J. E. Billington, Brooken; Secretary Treasurer, R. F. Terrell, Stigler; After the county meeting a Haskell County Medical Section of the Council of Defense was organized with the following officers: Chairman, R. F. Terrell; Secretary, T. B. Turner, Stigler.

CORRESPONDENCE

LIEUTENANT MARKS WRITES.

Pittsburg, Pa., April 28, 1918.

Dr. Claude A.. Thompson,
Muskogee, Oklahoma.

Dear Doctor:

I received the certificate of membership in the Oklahoma State Medical Society, today, for which I thank you.

I have just finished the course of special instruction given here and thought that you would be interested in the work.

Dr. William O. Sherman, the Surgeon-in-Chief for the Carnegie Steel Corporation, is giving this work to the Government, gratis. This month we have had thirteen Medical Officers detailed here for the instruction; a similar number is detailed here every month for this work. We have an immense amount of material to work with.

During the first part of the work we have lectuers and clinics, demonstrating the standard treatment of fractures and the use of ambrine in the treatment of burns and the Carrel-Dakin treatment of infected wounds. During the rest of the time we do the work ourselves under his supervision, and have lectures on the recent development of bacteriology, pathology and laboratory work under very competent men.

When we came here we were all very skeptical about what we supposed was the extravagant claims for these new treatments. As we had all read their condemnations both in the A. M. A. Journal and our respective State Journals, we were somewhat biased in our opinions. But after spending one month here and working with them we have been thoroughly convinced that they are a distinct advance

in medicine and that where the confusion and adverse reports on them were made, it was probably from the lack of knowledge in the application of the proper technic. Unless the instructions are followed out minutely, the value of the treatment would be modified or altogether worthless.

The very rapid recovery, the lack of pain and the general condition of the patients under these treatments are remarkable and are more than enough to convince us that in being so slow in adopting these new methods we are neglecting a very valuable aid in keeping up the high standard that we strive for in the profession. These new treatments should be approached with a more open mind than we are accustomed to giving anything new in the medical line.

Dr. Sherman has accumulated a large volume of statistics supporting the value of these new principles when carefully carried out. And has also thoroughly convinced us as to their value by actual demonstration.

I beg your pardon for taking up so much of your valuable time but thought that you would be interested in this work.

I am reporting the first of the month to the Base Hospital, Camp Sherman, Chillicothe, Ohio.

Yours very respectfully

Lieutenant W. R. Marks, M. R. C.
(Vinita, Oklahoma)

PROCAINE AND NOVOCAINE IDENTICAL.

To the Editor:

It appears that in certain quarters the attitude is taken that the local anesthetic sold as procaine is not identical with that marketed as Novocaine. The Subcommittee on Synthetic Drugs of the National Research Council believes it important that this misunderstanding should be corrected and hence offers the following explanation:

The monohydrochloride of para-amino-benzoyldiethyl-amino-ethanol, which was formerly made in Germany by the Ferbwerke-vorm. Meister, Lucius and Bruening, Hoechst A. M., and sold under the trade marked name Novocaine, is now manufactured in the United States. Under the provisions of the Trading with the Enemy Act, the Federal Trade Commission has taken over the patent that gave monopoly for the manufacture and sale of the local anesthetic to the German corporation, and has issued licenses to American concerns for the manufacture of the product. This license makes it a condition that the product first introduced under the proprietary name "Novocaine" shall be called Procaine, and that it shall in every way be the same as the article formerly obtained from Germany. To insure this identity with the German Novocaine, the federal Trade Commission has submitted the product of each licensed firm to the A. M. A. Chemical Laboratory to establish its chemical identity and purity, and to the Cornell pharmacologist, Dr. R. A. Hatcher, to determine that it was not unduly toxic.

So far, the following firms have been licensed to manufacture and sell Procaine:

The Abbott Laboratories, Ravenswood, Chicago.
Ferbwerke-Hoechst Company, New York, N. Y.
Rector Chemical Co., Inc., New York, N. Y.
Calco Chemical Company, Bound Brook, N. J.

Of these, the first three firms are offering their products for sale at this time, and have secured their admission to New and Nonofficial Remedies as brands of Procaine which comply with the New and Nonofficial Remedies standards.

While all firms are required to sell their product under the official name "Procaine", The Farbwerke-Hoechst Company is permitted to use the trade designation "Novocaine" in addition, since it holds the right to this designation by virtue of trademark registration.

In conclusion: Procaine is identicol with the substance first introduced es Novocaine. In the interest of rational nomenclature, the first term should be used in prescriptions and scientific contributions. If it is deemed necessary to designate the product of a particular firm, this may be done by writing Procaine-Abbott, Procaine-Rector, or Procaine-Ferbwerke (or Procaine (Novocaine brand)).

Yours truly,

Julius Stieglitz, Chairman
Subcommittee on Synthetic Drugs,
National Research Council.

MISCELLANEOUS

GREAT DEMONSTRATION BY ARMOUR EMPLOYEES.

Fifteen thousand employees of Armour and Company, more than 75 per cent. of them of foreign birth, got a close up of "the Big Boss," at the Flag Day Exercises June 14 at the Chicago plant. They liked the personal touch and "the Boss" liked it.

When J. Ogden Armour appeared on the speaker's platform with Maclay Hoyne, the principal

speaker of the day, and A. Watson Armour, F. Edison White, R. J. Dunham and G. B. Robbins, vice-presidents of the company, he was acclaimed in more than thirty tongues. Every foreign tongue spoken in the United States can be heard in a tour of the Armour plant and the "Viva, Vive, Evviva, Atzye, Niech zyje, Zivio, Eljen, Da, Zdravstvuet and Benzai," were given as lustily as were the typical "Ray's" of the Americans.

The real feeling of the crowd was expressed in the muttered comment of one member of the great throng when he spoke aloud to himself, "Gad, this is true Democracy."

Preceding the principal program which included the raising of the flag, a parade was formed which marched through the stock yards and through the streets between the plant buildings.

The Flag Raising Program was held in front of the Armour Wholesale Market and after the singing of the Star Spangled Banner, in which Mr. Armour led, the flag was raised while a bugler played "the salute to the Colors." Then Mr. Hoyne was introduced and after a few words he gave way to Mr. Armour. When the chief of the great industry arose the stoch yards rocked with the cheers of the thousands. So affected was Mr. Armour that he could not speak and after a "Thank you, thank you, this is great," he called for a cheer for the flag. It was given as a cheer never before has been given in the stock yards. Then the crowd sang America.

During the program the crowd spoke in unison an "American's Creed," which follows:

"I believe in the United States of America as a government of the people, by the people, for the people; whose broad powers are derived from the consent of the governed; a demoracy in a republic; a sovereign nation of many sovereign states; a perfect union, one and inseparable, established upon these principles of freedom, equolity, justice and humanity for which American patriots sacrificed their lives and fortunes. I therefore, believe it is my duty to my country to love it; to support its constitution; to obey its laws; to respect its flag, and to defend it against all enemies."

THE HAY-FEVER PROBLEM.

Notwithstanding the many "specifics" and "near-specifics" for hay-fever that have been brought forward in recent years, the disease, if not precisely enigmatical, continues to baffle and perplex. It is evident that no single therapeutic agent has arisen that can eliminate, or even modify, the symptoms in all cases, individual sufferers presenting problems that are peculiar to themselves. The suprarenal substance, in the form of its isolated active principle, Adrenalin, is undoubtedly one of the most reliable alleviants. One feels justified in saying this in view of the long, efficient service it has rendered in the treatment of hay fever. Not infallible in a strict sense of the word, it affords grateful relief in a vast majority of cases. A powerful astringent, Adrenalin, topically applied, constricts the capillaries, arrests the nasal discharge, minimizes cough, headaches and other reflex symptoms, and hastens the resumption of natural breathing. Adrenalin Chloride Solution and Adrenalin Inhalant are the preparations commonly used, being sprayed into the nose and pharynx. The former should be diluted with four to five times its volume of physiologic salt solution, the latter with three to four times its volume of olive oil.

FROM THE STATE BOARD OF HEALTH, OKLAHOMA CITY.

Dr. John W. Duke, Commissioner.

SUMMER DISEASES.

While certain diseases are more prevalent at one season of the year than at another, it should be kept in mind that this is not so much due to climatic changes, as causes over which we have no control, as it is to our habits which to a large extent vary accordinz to the seeaons. In winter most of us spend a very large proportion of our time indoors and when it is cold we are apt to resort to all sorts of expedients to keep warm. The result is that quite often we subject our bodies to extremes of temperature or try to stay in rooms too "stuffy" for health. Consequently we are apt to suffer from "house diseases" in winter—diseases of the respiratory system, pneumonia, consumption, bad colds, grippe and the like. In addition, we have in winter those special diseases which come from close contact with others. Whooping cough is an example. Diphtheria is to a certain extent another, although this is more common in the fall than the winter.

In summer our habits change. Instead of staying indoors to keep warm, we get out-of-doors much of the time to keep cool. Our work, for a large part of the population, is more apt to take us out doors. The result is just what would be expected—a great decline in the number of respiratory diseases. Pneumonia, except under unusual conditions, seldom comes in summer. The same is true of grippe. Persons suffering from tuberculosis, if not cured, at least improve in condition when spring comes and they spend more time in the open

But if summer saves us from one group of diseases, it exposes us to another set, which might be called outdoor diseases. These are, as stated, essentially the result of our habits and our enviroments. Take typhoid fever for instance. The germ itself, the primary cause of this disease, is little affected by cold. It can be frozen and when thawed is as active and virulent as ever. Yet as a matter of fact there is less typhoid in winter than in summer. The reason is that our habits do not so much expose us to it and because the season is not so suitable for the carriage of germs from the sick to the well.

In summer, on the other hand, flies are bound to be almost everywhere. They are responsible to a considersble degree for the spread of typhoid. We work more in the open and therefore are more apt to get our hands soiled with the germs of typhoid. Thus it often happens that during August there is more typhoid than during the three coldest months of the year combined. Our diseases are as our habits—and this is the sum and substance of the principle upon which we must base our preventative measure.

Four habits which are largely responsible for the spread of diseases in summer are:

Carelessness in disposinz of the wastes from the human body.

Carelessness in protecting ourselves against summer insects.

Carlessness in our food and drink.

Carelessness in handling soiled articles of all sorts.

By the exercise of a comparatively small amount of care in these four directions the amount of summer disease could be greatly reduced.

PROTECTION AGAINST FLIES.

Everybody knows that flies are a pest and nuisance, but if people realized that they are also dangerous sources of disease stronger effort would be made for their elimination. The first practical step toward protection against flies is to have the house well screened. Flypaper, "swatters" and fly poison are also effective against those which get past the screens. The best poison consists of a mixture of two tablespoonfuls of formalin to a pint of milk and water in equal proportions. This can be placed in saucers or shallow bowls, being more effective if a sponge or crust of bread is also placed in the saucer for the flies to light on.

It should be remembered, however, that the fly is a tremendous breeder and that getting rid of manure piles and other breeding places is the most thorough and effective method of attacking this dangerous nuisance.

DEAD MEN THREE.

There were three of them trapped in an old chateau—Black Wolf and Terry and Dale.
And round them clamored the surging Huns, with weapons that would not fail.
So they held, each man, to his vantage point, and sent the steel in a storm
That broke the force of the frantic rush and scythe mowed the gray-green swarm.
Black Wolf, the son of a Shawnee chief, and a bad buck Indian, too,
Grinned as he ground at his Lewis gun while its "tac-tac" drilled them through.
Gone were the ways that the white man taught, and the polish of old Carlisle—
The Indian shouted his death song high, then bent to his work with a smile;
A volley shattered the Lewis gun—then he tore from the ancient wall
A battle ax of the olden days, and met the assault in the hall.
His was a death that the greatest chiefs might seek in a masterly pride,
For hand to hand, with a pale face foe, he went out as Tecumseh died!

Terry, the gunman, Bowery boy, fresh from a stretch in the pen,
Fired through the smoke till a stricken mass piled up in that devil's den—
He smashed his rifle over a head—then his automatic gun
Answered his hand like a living thing as each shot sent death to a Hun.
He had broken his word to the Warden, yes—and under a new coined name
The honor man of the prison squad had plunged in the mightiest game.
His hand was red and his heart was black—at least so the records said—
But the ledger balanced and all was square as the boy pitched forward dead!

Then the citified and handsome Dale, at bay on a winding stair,
Drove back the press of the foremost foes and fought like a grizzly bear;
They rushed in a pellmell fury up, and his bullets dropped them back
Till the stairway's length was filled and choked with a red and hideous wrack;
They grappled him and dragged him down—as he strove beneath their feet
His dulling ears hear distant shouts—and a bugle called retreat!
The Huns gave way—they staggered out—they fled from the iron will
Of the Dead Men Three who had held them hard, till the Flag came over the hill!

—By W. A. Phelon.

COUNCIL ON PHARMACY AND CHEMISTRY.

Partial list of articles accepted in May, 1918.

Parke, Davis & Company: Antipneumococcic Serum, Type 1.

E. R. Squibb and Sons: Antipneumococcic Serum, Type 1.

NEW AND NONOFFICIAL REMEDIES.

Chlorcosane. A liquid, chlorinated paraffin, containing its chlorine in stable (non-active) combination. It is used as a solvent for dichloramine-T and is itself without therapeutic action.

Chlorcosane-Calco: A brand of chlorocosane containing from 31 to 35 per cent. of combined chlorine. The Calco Chemical Co., Bound Brook, N. J.

Chlorcosane-Monsanto: A brand of chlorcosane containing from 27 to 30 per cent. of combined chlorine. Monsanto Chemical Co., St. Louis, Mo. (*Journal A. M. A.*, May 18, 1918, p. 1459).

PROPAGANDA FOR REFORM.

Mayr's Wonderful Stomach Remedy. This is a "patent medicine" adaptation of the old "fake gallstone" trick, which consists of selling large doses of olive or other oil and a saline cathartic. The result of taking this combination is the passage of a number of soapy concretions which the victim is persuaded to believe are gallstones. In 1915 Mayr was convicted under the federal Food and Drugs Act for making false and fraudulent claims for his "remedy". As the Food and Drugs Act applies only to the packages of a preparation and not to store window displays and newspaper advertising, Mayr has revised the labels, etc., for his "patent medicine", but still makes misleading claims elsewhere (*Journal A. M. A.*, May 11, 1918, p. 1393).

Cotarnin. Cotarnin is an artificial alkaloid derived by oxidation from narcotin, by a process analogous to the derivation of hydrastinin from hydrastin (which again differs from narcotin only by an additional OCH_3 group). Cotarnin hydrochlorid is marketed as stypticin, and cotarnin phthalate as styptol. Cotarnin is used systemically mainly against uterine hemorrhage, especially in menstrual hemorrhage, endometritis and congestive conditions. It is ineffective against postpartum hemorrhage or bleeding from gross anatomic lesions, and probably also against hemorrhage in other internal organs. Local application of cotarnin in substance or concentrated solution has a direct vasoconstricting effect and is used in tooth extractions, epistaxis, etc. (*Journal A. M. A.*, May 11, 1918, p. 1396).

Syphilodol. According to the French Medicinal Company, New York, Syphilodol is a "synthetic chemical product of silver, arsenic and antimony", the effects of which are very similar to those of salvarsan and neosalvarsan, with the advantage that, in addition to being available in ampules for intramuscular or intravenous use, it is also furnished in the form of tablets for oral administration. The A. M. A. Chemical Laboratory reports that each Syphilodol tablet contained approximately 3-4 grain yellow mercurous iodid with minute traces of arsenic, silver and antimony. The laboratory further reports that a Syphilodol ampule contained a liquid having the characteristics of water, in which the presence of less than 1-6000 grain of arsenic could be demonstrated. Shorn of its mystery, Syphilodol therefore is essentially the old, well-known "protoiodid of mercury" (*Journal A. M. A.*, May 18, 1918, p. 1485).

Pyocyaneus Bacillus Vaccine. When this vaccine was admitted to New and Nonofficial Remedies in 1910 it gave promise of having therapeutic value. Now the firms whose products are described in New and Nonofficial Remedies advise the Council on Pharmacy and Chemistry that they have ceased to make the vaccine because of lack of demand. Holding the lack of demand as evidence that the vaccine had proved without value, the Council directed its omission from New and Nonofficial Remedies. (*Journal A. M. A.*, May 18, 1918, p. 1496).

The Dr. Chase Company. A fraud order prohibiting the use of mails has been issued by the post office department against the Dr. Chase Company. This patent medicine concern sold three remedies—pills—which, before the Food and Drugs Act made lying on the label irksome if not expensive, were known, respectively, as "Dr. Chase's Blood and Nerve Food", "Dr. Chase's Kidney Food" and "Dr. Chase's Liver Food". Since the enactment of the Food and Drugs Act, however, the term "food" in the name of the nostrums has been changed to "tablets" for obvious reasons. In 1917 K. E. Hafer, the proprietor of the Dr. Chase Company, was fined under the Food and Drugs Act for misbranding. (*Journal A. M. A.*, May 25, 1918, p. 1557).

Capsules of Bismuth Resorcinol Compound. According to the label, each capsule of Bismuth Resorcinol Compound (Gross Drug Co., Inc., New York City) contains bismuth subgallate, 2 grs.; resorcinol, 1 gr.; betanaphthol, 1-2 gr., and creosote (beechwood) 1m. The preparation was declared inadmissible to New and Nonofficial Remedies because unwarranted therapeutic claims were made for it; because the name is not descriptive of its composition, and because the combination of the stated drugs in fixed proportions is irrational (Reports Council Pharmacy and Chemistry, 1917, p. 139).

Elixir Novo-Hexamine. The A. M. A. Chemical Laboratory reports that Exilir Novo-Hexamine (Upsher Smith, St. Paul, Minn.) is not a "stable, palatable, potent preparation of Novo-Hexamine, an acid compound of hexamethylenamine", as claimed, but a flavored and colored solution of sodium acid phosphate and hexamethylenamine in diluted glycerol. The Council on Pharmacy and Chemistry considered the report of the laboratory and the advertising claims, and declared Exilir Novo-Hexamine inadmissible to New and Nonofficial Remedies because its composition is secret; because the ill-advised use by the public is invited; because unwarranted therapeutic claims are made for it; because the name is misleading, and because it is irrational to prescribe hexamethylenamine and sodium acid phosphate in fixed proportions (Reports Council Pharmacy and Chemistry, 1917, p. 142).

Formosol. Sunshine's Formosol (The Formosol Chemical Co., Cleveland, Ohio) is claimed to contain 18 per cent. formaldhyd in a solution of soap. The preparation was refused recognition by the Council on Pharmacy and Chemistry because it was advertised indirectly to the public and because unwarranted therapeutic claims were made for it (Reports Council Prarmacy and Chemistry, 1917, p. 145).

Kalak Water. Kalak Water (The Kalak Water Co., Inc., New York) is a carbonated, artifical mineral water, said to contain in one million parts sodium carbonate, 4,049.0; sodium phosphate, 238.5; sodium chlorid, 806.3; calcium carbonate, 578.2; magnesium carbonate, 48.9, and potassium chlorid, 47.9. In view of the false and absurd claims made, the Council on Pharmacy and Chemistry declared Kalak Water inadmissible to New and Nonofficial Remedies (Reports Council Pharmacy and Chemistry, 1917, p. 148).

Neurosine and the Original Package Evil. Neurosine advertisements ask that only original bottles of Neurosine be dispensed when physicians prescribe the nostrum. The reason is obvious: the bottle has the name blown in the glass and thus is an invitation to the patient to purchase more on his own initiative and also recommend the preparation to his friends. The danger to the public from the self-administration of mixtures of bromides, such as Neurosine, is obvious. Neurosine is said to contain potassium bromid, sodium bromid, ammonium bromid, zinc bromid, extract of lupulin, fluid extract cascara sagrada, extract of henbane, extract of belladonna, extract of cannabis indica, oil of bitter almond and aromatic elixir. This chemical blunderbuss has been advertised for use in insomnia, hysteria, neuresthenia, migraine, etc. It has also been recommended for children suffering from chorea. In all the years that Neurosine has been exploited to physicians with such remarkable claims, we have never seen a report of a careful clinical study in which the product has been used under the conditions which scientific investigation demands. (Journal A. M. A., April 27, 1918, p. 1251).

The Toxicity of Arsphenamin (Salvarsan). James C. Sargent, Milwaukee, Wis., and J. D. Willis, Roanoke, Va., report untoward effects from the intravenous administration of American-made salvarsan (arsphenamin). Such experiences are not unusual, but should be reported. Untoward results followed the use of the German salvarsan. Such reactions may be due to faulty preparation, to deterioration of certain ampules of a batch, to idiosyncrasy of the patient or to faulty technic or preparation or injection. There is no reason to believe that arsphenamin made in this country is more toxic or less satisfactory than that formerly imported from abroad (Journal A. M. A., April 27, 1918, p. 1254).

Misbranded Nostrums. The following are some "patent medicines" which the federal authorities held to be sold under false claims: Ascatco, containing over 13 percent. alcohol and some opium. Mexican Oil, containing over 57 per cent. alcohol, together with essential oils, glycerin ,red pepper, emodin, menthol and a small amount of opium alkaloids. Persil, containing 40 percent. alcohol. Though claimed to contain in addition, asparagus, parsley, celery, buchu, juniper berries, it contained no appreciable quantities of celery, buchu, juniper, asparagus or parsley Dr. D. Kennedy's Favorite Remedy, containing 18 per cent. alcohol, nearly 50 per cent sugar, and over 4 per cent. potassium acetate, with methyl salicylate, aloes, licorice and oil of sassafras. Our Standard Remedy, tablets containing rhubarb, senna,scoparius, licorice, red pepper and some ammonia compound with indications of aloes. Dr. King's Throat and Lung Balsam, claimed to relieve coughs and colds and consumptive patients in the last stages of the disease. "White Pine Expectorant" and "White Pine Balsam" (Allan-Pfeiffer Chemical Co.), a syrup containing alkaloid (probably morphine), chloroform, alcohol, benzoic acid and plant extract, but no extract or tar of white pine. California Tuna Tonic Tablets, pills containing iron carbonate and a small quanity of nux vomica alkaloids (strychnin, etc.). Alorine Antiseptic Suppository, containing quinin sulphate, boric acid and tannic acid. St. Joseph's Quick Relief, containing 32 per cent. alcohol with Peru balsam, camphor and red pepper. "Andrew's Wine of Life Root or Female Regulator", containing over 14 per cent. alcohol, sugar, methyl salicylate and tannin. "Andrews' Wine of Life Root Annex Powders", composed of sodium chloride and sodium bicarbonate, with a small amount of sodium carbonate. Clark Stanley's Snake Oil Liniment, a light mineral oil mixed with about 1 per cent. of fatty oil, red pepper and possibly a trace of camphor and turpentine (Journal A. M. A. April 20, 1918, p. 1183).

NEW BOOKS

Under this heading books received by the Journal will be acknowledged. Publishers are advised that this shall constitute return for such publications as they may submit. Obviously all publications sent us cannot be given space for review, but from time to time books received, of possible interest to Oklahoma physicians, will be reviewed.

MEDICAL WAR MANUAL, NUMBERS FIVE AND SIX.

(Authorized by the Secretary of War and Under the Supervision of the Surgeon General and the Council of National Defense)

Number Five. Lessons From the Enemy. How Germany Cares for Her War Disabled. By John R. McDill, M. D., F. A. C. S., Major, Medical Reserve Corps, U. S. Army. Illustrated. Price $1.50. Lea and Febiger, Philadelphia and New York.

We believe we have seen nothing approaching this little volume in the meatiness of its contents. The illustrations are good, practically all originals and the work contains so much that is new, every medical reserve corps man should have a copy.

Number Six. Laboratory methods of the United States Army. Compiled by the Division of Infectious Diseases and Laboratories, office of the Surgeon General, War Department, Washington, D. C. Illustrated. Price, $1.50.

A TEXT-BOOK OF OBSTETRICS. By Barton Cooke Hirst, M. D., Professor of Obstetrics in the University of Pennsylvaina. Eighth edition, revised and reset. Octavo of 863 pages, with 715 illustrations, 38 of them in colors. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, $5.00 net.

THE PRACTICE OF PEDIATRICS. By Charles Gilmore Kerley, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital. Second edition, revised and reset. Octavo of 913 pages, 136 illustrations. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, $6.50 net.

PRINCIPLES OF SURGICAL NURSING. A guide to Modern Surgical Technic. By Frederick C. Warnshuis, M. D., F. A. C. S., Visiting Surgeon, Butterworth Hospital, Grand Rapids, Michigan., Chief Surgeon, Pere Marquette Railway. Octavo of 277 pages with 255 illustrations. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, $2.50 net.

THE NERVOUS SYSTEM AND ITS CONSERVATION. By Percy G. Styles, Assistant Professor of Physiology in Harvard University; instructor in Boston School of Physical Education. Second edition revised. 12mo of 240 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $1.50 net.

DIFFERENTIAL DIAGNOSIS. Presented through an Analysis of 317 cases. By Richard C. Cabot, M. D., Assistant Professor of Clinical Medicine, Harvard University Medical School, Volume 2, Second Edition. Octavo of 709 pages, 254 illustrations. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, $6.00 net.

OFFICERS OF COUNTY SOCIETIES, 1918

County	President	Secretary
Adair	A. J. Sands, Watts	A. J. Patton, Stilwell
Alfalfa	H. A. Lile, Aline	W. H. Dersch, Carmen
Atoka-Coal		A. Cates, Tupelo
Beaver		
Beckham		V. C. Tisdal, Elk City
Blaine	J. B. Leisure, Watonga	J. A. Norris, Okeene
Bryan	J. L. Reynolds, Durant	D. Armstrong, Durant
Caddo	A. H. Taylor, Anadarko	Chas. B. Hume, Anadarko
Canadian	P. F. Herod, El Reno	W. J. Muzzy, El Reno
Choctaw	V. L. McPherson, Boswell	E. R. Askew, Hugo
Carter	F. W. Boadway, Ardmore	Robt. H. Henry, Ardmore
Cleveland	J. J. Gable, Norman	Gayfree Ellison, Norman
Cherokee	W. G. Blake, Tahlequah	C. A. Peterson, Tahlequah
Custer	J. Matt Gordon, Weatherford	C. H. McBurney, Clinton
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